UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,004	03/02/2004	Xiaohua Shi	20002/18496	1278

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EXAMINER
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ART UNIT	PAPER NUMBER
2191	

MAIL DATE	DELIVERY MODE
12/07/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/791,004	SHI ET AL.
	Examiner	Art Unit	
	Qamrun Nahar	2191	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>24 September 2007</u>.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-24</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-24</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This action is in response to the amendment filed on 09/24/2007.

2.   The objection to the oath/declaration is withdrawn in view of applicant's

remarks/arguments.

3.   The objection to the disclosure is withdrawn in view of applicant's remarks/arguments.

4.   The objection to claim 2 is withdrawn in view of applicant's amendment.

5.   The rejection under 35 U.S.C. 112, second paragraph, as being indefinite for failing to

particularly point out and distinctly claim the subject matter which applicant regards as the

invention to claims 4-5, 13, 20-21 and 23 is withdrawn in view of applicant's amendment.

6.   Claims 1-24 are pending.

Response to Amendment

Specification

7.   As previously indicated in the last Office Action (Mailed on 05/24/2007, par. 3), the use

of the trademark JAVA has been noted in this application. It should be capitalized wherever it

appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary

nature of the marks should be respected and every effort made to prevent their use in any manner

which might adversely affect their validity as trademarks.

Claim Rejections - 35 USC § 102

8.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9.   Claims 1-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Ruf (U.S.

6,665,865).

Per Claim 1:

The Ruf patent discloses:

- **determining an age of an equivalence class** ("... Each thread allocation site can correspond to

one thread or multiple threads in the program at runtime. Part of the analysis involves

determining whether more than one thread object can be created from a single thread allocation

site. ... each thread allocation site is identified with a number. Procedures executable by a thread

corresponding to the thread allocation site are marked with the number. When this is complete,

if a method is marked with more than one number, then the method can be executed by multiple

threads." in column 6, lines 22-30 and column 7, lines 10-17; T1 is allocated prior to T2; the

oldest procedure associated with the thread allocation site is a determination of age.)

- **and cloning the equivalence class based on the age of the equivalence class** ("... The

following actions are employed in determining whether to create a new copy of a method: ... 4.

If the new procedure signature has not been encountered before, create a new copy of the method

for later optimization and enqueue a request to specialize the copy of the new procedure

signature. The call site is also modified to invoke the appropriate specialized procedure." in

column 15, line 39 to column 16, line 3).

Per Claim 2:

The Ruf patent discloses:

- **wherein the equivalence class is associated with an escape analysis** (column 6, lines 8-20).

Per Claim 3:

The Ruf patent discloses:

- **wherein determining the age of the equivalence class includes an initialization operation**

(column 7, lines 10-17).

Per Claim 4:

The Ruf patent discloses:

- **wherein determining the age of the equivalence class includes incrementing the age of the**

equivalence class in response to a cloning operation (column 7, lines 10-17).

Per Claim 5:

The Ruf patent discloses:

- wherein determining the age of the equivalence class includes selecting the age of the

equivalence class to be a greater age of first and second ages associated with respective

merged equivalence classes (column 9, lines 53-67).

Per Claim 6:

The Ruf patent discloses:

- wherein cloning the equivalence class based on the age of the equivalence class includes

associating the equivalence class with one of an old equivalence class and a young

equivalence class (column 9, lines 62-67).

Per Claim 7:

The Ruf patent discloses:

- further comprising associating the equivalence class with the old equivalence class in

response to the age of the equivalence class being greater than or equal to an age threshold

(column 9, lines 64-67).

Per Claim 8:

The Ruf patent discloses:

- further comprising associating the equivalence class with the young equivalence class in response to the age of the equivalence class being less than an age threshold (column 9, lines 62-67).

Per Claims 9-16:

These are system versions of the claimed method discussed above (claims 1-8, respectively), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also anticipated by Ruf.

Per Claims 17-24:

These are machine accessible medium versions of the claimed method discussed above (claims 1-8, respectively), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also anticipated by Ruf.

Response to Arguments

10.   Applicant's arguments filed on 09/24/2007 have been fully considered but they are not persuasive.

In the remarks, the applicant argues that:

a)   Ruf fails to teach determining an age of an equivalence class as recited in claims 1, 9 and 17.

Examiner's response:

a)　　　Examiner strongly disagrees with applicant's assertion that Ruf fails to disclose the claimed limitations recited in claims 1, 9 and 17. Ruf clearly shows each and every limitation in claims 1, 9 and 17. Ruf teaches determining an age of an equivalence class ("... Each thread allocation site can correspond to one thread or multiple threads in the program at runtime. Part of the analysis involves determining whether more than one thread object can be created from a single thread allocation site. ... each thread allocation site is identified with a number. Procedures executable by a thread corresponding to the thread allocation site are marked with the number. When this is complete, if a method is marked with more than one number, then the method can be executed by multiple threads." in column 6, lines 22-30 and column 7, lines 10-17; T1 is allocated prior to T2; the oldest procedure associated with the thread allocation site is a determination of age.). In addition, see the rejection above in paragraph 9 for rejection to claims 1-24.

Conclusion

11.　　**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

12.   Any inquiry concerning this communication from the examiner should be directed to

Qamrun Nahar whose telephone number is (571) 272-3730. The examiner can normally be

reached on Mondays through Fridays from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Wei Y Zhen, can be reached on (571) 272-3708. The fax phone number for the

organization where this application or processing is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the TC 2100 Group receptionist whose telephone number is 571-272-2100.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Qamrun Nahar
December 3, 2007

MARY STEELMAN
PRIMARY EXAMINER